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ABSTRACT

Outlined are similarities between the developmental system of J. Piaget and the system of N. Kephart. Considered are views of the two men in areas such as organization and adaptation, early development, and mental structures. The author concludes that for learning disabled children, Kephart's conceptions lead more clearly to educational programs and specific instruction than Piaget's. (LS)

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COMPARISON OF THE THEORETICAL CONSTRUCTS OF PIAGET AND KEPHART

by Barry Wadsworth

When I was in graduate school I became interested in Piaget's work. It seemed to me to be important and something that educators needed to look at. After I felt I understood Piaget's writing enough, I began thinking about applying Piagetian ideas in the classroom and found this very difficult. The application of his ideas was unclear to me. My first job after graduate school was at the University of Colorado. During that first year I heard Kephart speak to a group of educators. This was my first contact with his ideas. My immediate impression was that much of what Kephart reported he was doing in his clinic in Fort Collins, Colorado, and his theoretical rationale was consistent with Piagetian ideas. Kephart seemed to be doing what Piaget was talking about. (Wadsworth, 1971)

While I will deal primarily with the similarities that exist between the theoretical interests of the two men, first a difference. Piaget has been a theoretician primarily interested in how knowledge is acquired and not directly concerned with educational issues. Kephart, on the other hand, has been, in the past 15 years, primarily a clinician working with children with learning problems. Piaget's work has been entirely developmental. Kephart, while having to be ecclectic in practice, as all therapists in learning disabilities must (or should be), was fundamentally a developmentalist.

Organization and Adaptation

Piaget views intellectual development or cognitive development as processes of organization and adaptation. Kephart's conceptualizations were essentially the same. Both men, in talking of organization were describing a neurological system. For both, the development of neurological structures proceeds in an orderly, sequential, and integrative manner. Piaget spoke of assimilation and accommodation as the processes that produced neurological or structural change (schemata).

Piaget describes four sequential stages of development he calls the: sensori-motor; preoperational; concrete operational: and formal operational. The stages are not seen as being discrete. Development is seen as being continuous. The use of stages is in large part a convenience to help one conceptualize development. Kephart also outlines a series of sequential stages that development normally proceeds through. These he calls the: motor-perceptual; perceptual; perceptual-conceptual; conceptual; and conceptual-perceptual. Kephart's organization can be seen as parallel to Piaget's (see Figure 1).

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Figure 1

Stages of Development

Piaget	Kephart
Sensory-motor	Motor Motor-perceptual
Preoperational	Perceptual
Concrete operational	Perceptual-conceptual
Formal operations	Conceptual Conceptual-perceptual

Clearly, Kephart's basic theoretical formulations are developmental.

Adaptation

Piaget conceived of cognitive development as a form of adaptation in the biological sense. Development proceeds when and if the environment demands it[1], and if the development has adaptive value to the child. Biologically, eating has adaptive value. Similarly, organizing oneself motorically (i.e. learning to ~~see, hear~~, reach, grasp, manipulate, crawl) permits one to operate more effectively on the environment. Thus, spoken language has adaptive value from the first word mastered, while reading typically has little adaptive value until one reads "a lot."

Kephart's conception was similar, though I don't recall him using the word adaptation. He said (Kephart, 1971a) "We live in an orderly universe. Because we live in an orderly universe, the universe is going to present the child with things that belong together contiguously in space and time. The universe will do it if we don't interfere." Thus, Kephart clearly conceived of development as a form of adaptation.

In addition, Kephart's concept of veridicality relates to the notion of adaptation. He differentiates between veridical learnings and valid learnings. Veridical learnings are those that are true in terms of the basic physical laws of the universe. Valid learnings are true by social agreement. Thus gravity is a veridical concept, as is locomotion and communication. On the other hand, using a fork and reading are valid concepts. Kephart insisted that valid learnings, the more generalizeable, were the most desirable with respect to development.

1. Piaget has been accused of being both an environmentalist and a maturationist. He is neither, but is an "interactionist" in that he believes the interaction of maturation, experience (action on the environment), social experience, and equilibrium is necessary. All four factors are necessary but none alone is sufficient to insure development.

In training, Kephart insisted that while we frequently must start with teaching children valid concepts, we should always lead them to and end up with teaching veridical concepts. The teaching of valid concepts should only be a means to the teaching of veridical concepts. In American education it appears that these priorities are typically reversed.

Reality

Kephart and Piaget view the child's reality as a construction. That is, the child, in the process of organizing and adopting constructs the world around himself. The organization is created by the child. The child does not absorb an external ready-made structure (a-la-Behaviorism), but creates the structure. The similarity in different children's structures is insured by the "orderly universe."

Early Development

Both men assert that development during the early years of life, including the first year, is the basis for all other development and learning. That is, the quality of motor and sensory development places constraints on later development of reasoning, thought processes, etc.. Piaget has alerted us to the fact that intellectual development starts at birth (or before) and that the child's motor problem solving during the first year (days) of life is indeed intellectual activity, even if it is not abstract.

Two of Kephart's most creative conceptions are those of kinesthetic awareness and the perceptual-motor match. While the concept of kinesthetic awareness has been around a long time, Kephart is responsible, along with others, for making us aware of its singular importance in control of movement. Kephart has shown us kinesthetic awareness is a developmental phenomenon, and a teacher should not assume it develops automatically. In addition, he has worked a rationale and methodology for remediation of insufficient kinesthetic awareness.

Kephart's concept of the perceptual-motor match is one way of conceptualizing how the sensory systems become organized so one can process sensory information. His notion, briefly stated, is that the motor (and kinesthetic) system is the first sensory avenue to develop (out of reflexes) and become capable of "meaningful" reception of stimuli. After some stability of motor concepts, the child begins to "match" what he sees with what he feels (the motor). With time and activity, the matching process gradually results in a transfer of "motor meaning" or organization to the visual system. Eventually the child is capable of processing visual information without relying on motor information. A similar matching of the auditory to the motor occurs. Thus, the importance of motor development for Kephart is clear.

Space and Time

Both Piaget and Kephart saw early development as a period of mastering space and time. For both, all behavior is both spatial and temporal. Piaget indicates the importance of the two dimensions in his books, The Origins of

of Intelligence (1952), The Child's Conception of Space (1956), and The Child's Conception of Time (1970). Kephart devotes chapters to both space and time in The Slow Learner in the Classroom (1971,b).

Activity

Piaget sees the key to intellectual development as the actions of the child on objects, events (experience), and people (social interaction) in his environment. In the early years, this means actual motor manipulation and other sensory explorations of objects, etc.. Piaget has said repeatedly that you cannot teach concepts verbally; that concept development must be based on the actions of the child. Development that is based on verbal activity (lectures) and observation (of demonstrations) is not optimum. A child evolves a concept of numbers by acting on arrays of objects. Number concepts are not inherent in the objects, but are created by the child out of his activity on objects. Number concepts cannot evolve solely out of verbal activity.

Kephart places a similar value on the activity of the child. He writes, "In early childhood, mental and physical activities are closely related, and motor activities play a major role in intellectual development....." It is logical to assume that all behavior is basically motor, that the prerequisites of any kind of behavior are muscular and motor responses...."(Kephart, 1971b, p. 79). Kephart suggests that the most important learnings during early childhood are: balance and posture, locomotion, contact, and receipt and propulsion. These learnings can evolve only as the child acts motorically on the environment.

Mental Structures

Piaget describes the organization of the mind using the construct of Schemata. Schemata are those infered structures that determine and are reflected in the responses of children. Schemata evolve as the child actively assimilates and accommodates to the environment. For Piaget, these constructs are thought to be the psychological analogues of the physiological neurological processes.

Kephart describes the organization of the mind using the construct of generalization. Generalizations are a series of patterns or individual skills which become in organization clustered together. These clusters form the generalizations which permit the child to perform with flexibility, with many patterns or skills as options, rather than with only one pattern or skill. An example of a generalization in the motor area is locomotion, getting around in space. Related patterns or skills would be walking, crawling, running, hopping, etc.. Collectively, if related, these form a generalization which permits more flexible behavior than possession of individual skills or patterns permit.

This paper has outlined some of the similarities between the developmental system of Piaget and the system of Kephart. Piaget has operated largely in the theoretical realm developing viable conceptions. He has provided us with a view of the child and his development that, I think, education should be consistent with. Kephart has worked both in the applied realm, implimenting conceptions, and in the theoretical realm, evolving some inique and powerful conceptions. For children we call learning disabled, Kephart's conceptions lead more clearly to educational programs and specific instruction than Piaget's.

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